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## Exploring Desert Stone

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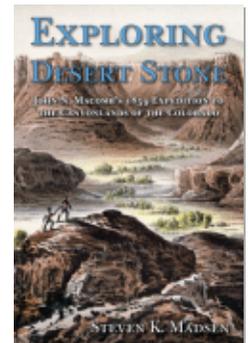
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## INTRODUCTION

To the casual observer the Macomb expedition report may appear typical of other government-issued survey reports of the time, but a closer look reveals much more. It is a classic of frontier literature. Army historian Frank N. Schubert explains that the geographical and geological depictions in the report “revealed a new and unknown region” to Americans. Its authors “gave the nation a substantial amount of information about the Colorado” and “made significant contributions to the development of science.” (See Schubert’s *Vanguard of Expansion*.) In addition, the report’s color illustrations and romantic narrative offered new vistas for Americans seeking a national identity following the Civil War.

Furthermore, the Macomb report chronicled a surprising event—the historically important discovery of petrified bones on the Old Spanish Trail. (Among the paleobiology collections of today’s Smithsonian Institution are the famous vertebrate fossils discovered by the expedition. The Museum of Natural History publicizes the specimens as the first significant fossils of their kind added to its collections.)

Printed in large format, the title in gold leaf on the spine of the Macomb report reads: *Exploring Expedition from Santa Fé to Junction of Grand and Green Rivers. 1859. Macomb. Geological Report. Newberry*. The gilt shield of the Corps of Topographical Engineers, with the national spread eagle perched on a crest, wrapped with a wreath of oak leaves and laurel foliage, adorns the bottom of the spine. Within this volume are eleven beautifully rendered, full-page color plates of landscape vistas, three black-and-white landscape lithographs, and eight plates of fossils. Tipped into the back of the book is a large folding map depicting the frontier region examined by the expedition.

Inexpensive reprint editions of the Macomb report and free online copies of the publication render another reissue of the report unnecessary. Nevertheless, none of the online versions comes with a reproduction of the superb folding map, and only one Web site includes the color plates in its file. The quality of lithographs contained in the Internet collection ranges from adequate to poor. Even the reprint of the report by the University of Michigan Library's Scholarly Publishing Office lacks the color lithographs and the large-scale map. This book showcases both historical gems.

In 1859, the U.S. War Department charged Captain John N. Macomb, Jr., with finding a practicable route for military supplies from Santa Fé, New Mexico, to the southern settlements of Utah Territory—in the event of future conflicts with its inhabitants. In addition, it directed him to locate the confluence of the Green and Colorado rivers, fill a great gap in the geographical knowledge of the American West, survey the region transected by the Old Spanish Trail, and conduct a scientific study of the Four Corners region, particularly the canyonlands of the Colorado Plateau.

The Macomb report, delayed until 1876 because of Civil War conditions and apparent problems with finishing the illustrations, contained a summary of the expedition's travels by the leader of the expedition, an eminent military engineer. The prominent physician/geologist Dr. John S. Newberry wrote the eloquent scientific study of the geology and natural resources of the region. Newberry had been with the Joseph C. Ives expedition in 1858. The Ives party ascended the Colorado River to determine the extent of its navigability for steamboat travel. In addition, the U.S. Army sought to use the Colorado as a waterway from which to dispatch troops and supplies to inland military posts, particularly Camp Floyd in central Utah. During the survey, Newberry became the first scientist to reach the floor of the Grand Canyon. His geological study, issued in the Ives report, complemented his work with the Macomb expedition. Newberry and the noted paleontologist Ferdinand B. Meek compiled important fossil reports for Macomb. Frederick W. von Egloffstein, who had also served with Ives, pioneered a new technique in cartography and perfected it with the survey map that accompanied the Macomb report. In addition, civil engineer Charles H. Dimmock provided a splendid field map from which Egloffstein built his masterful representation of the Four Corners region, where four southwestern states merge.

The region mapped by Captain Macomb's command encompasses a diverse landscape of majestic alpine mountains, desert badlands cut by impassable canyons and studded with massive rock monuments, plateaus blanketed in sagebrush and grasses, and juniper and piñon forests. Much

of the country, sparsely dotted by modern towns and transected by ribbons of highway, remains barely touched by the onrush of civilization.

At its heart lies one of the largest uninhabited and undeveloped landscapes in the American West. A myriad of fanciful shapes, captured in stone, greet the eye. Moreover, two of the largest streams of North America—the Colorado and Green rivers—flow through it. The area is rugged, scenic, and remote. (The high desert can also be a dangerous and deadly place. Modern adventurers need to take adequate precautions when visiting the route of the expedition, particularly away from the pavement.) The luxury of time, and advanced technology, allows today's travelers to pause and soak in its natural beauty.

The views in these settings stimulate literary flights of fancy, a common nineteenth-century activity among scientists and explorers. Both the expedition's geologist and topographer engaged in it. For this writer, the allure of the Colorado Plateau's heartland also proved unavoidable. It is a wildly contorted land, alive with color and harmonious features; even the random visitor feels the magic of the landscape's compelling solitude. A number of vantage points in the pristine air near the confluence of the Green and Colorado rivers reveal panoramas magnificently diverse yet unified by a succession of rocks standing upright—temples of sandstone and flat-topped monuments. Rock sentinels, gleaming in the hot sun, provide a grand color-fest for the artist's palette. Clouds shift to create new intensities of light and shadow on another precipice, another canyon, another view. A haunting wind scrapes the desert floor and whispers as it circles cliffs and passes through eroded canyons and stone notches. Soft talus slopes form broad, apron-like bases below sheer stone walls—a pattern that echoes across a vibrant landscape. Upthrust rocks, while retreating from erosion, retain their profiles in this “land of living rock.”

Most of the landmarks seen by the expedition remain intact and observable—many are accessible from modern highways. Besides a description of the expedition's general route of travel, this book tells its long overlooked story with more depth and accuracy than has been possible in the past by using newly discovered historical documents. Many of these, which I have transcribed, appear in part II. Although brief excerpts of a few selections have previously appeared in print, none has been issued in its entirety until now. The recovery of these documents provides a more complete record of the Macomb expedition. In addition, this work includes brief biographical sketches of the key participants and uses excerpts from their contemporary notes and correspondence to complete the picture.

In 1860, John N. Macomb, Jr., the leader of the San Juan Exploring Expedition, submitted a report of the expedition's activities that appeared

at the beginning of the final publication. John S. Newberry wrote the geological notes, the substance of the published work, which appeared next. Two reports on fossils collected by the expedition, one written by noted geologist Fielding Bradford Meek and the other by Newberry, appear at the end of the book. A map drawn by Baron Frederick Wilhelm von Egloffstein, a Prussian aristocrat, completed the work. (Neither Egloffstein nor Meek, however, had participated in the expedition.)

Paleontologist Edward D. Cope issued a report on Newberry's dinosaur fossil find in volume 4 of the 1877 George M. Wheeler Survey Report. Cope's report and the lithographic plate illustrating the dinosaur bones are in the second part of the volume on paleontology; this book includes a copy of the plate.

Some notes about the source materials printed in this volume: Both Newberry and Charles H. Dimmock, the expedition's topographer and cartographer, kept diaries of their experiences in the field. In addition, Dimmock kept a sketchbook and a separate portfolio of pencil sketches illustrating the people and landscapes he encountered on the journey. Recently, I discovered Dimmock's diary and sketchbook at the Virginia Historical Society in Richmond. Thanks to the owner, Margaret Jones Perritt, Dimmock's diary entries and sketches appear in print for the first time. I also located Dimmock's portfolio in the College of William and Mary in Williamsburg. Nearly all of Dimmock's foxed and yellowed pencil sketches are shown in part I.

In addition to his drawings, Dimmock submitted a topographical memoir to Macomb, which was not included in the expedition's official manuscript collection. Instead, Macomb's wife placed it in a collection of family papers, now in the Library of Congress. My transcription of the complete memoir appears in part II.

Newberry's lengthy diary constituted another primary source; although referenced numerous times in the Macomb report, the original manuscript has not been found. Perhaps, since he had included several of his diary entries in the published report, Newberry did not bother to preserve the manuscript. Instead, he submitted an abridged diary, written in telegraphic style, which I have transcribed and included here; only a microfilm version of this document has been found. The National Archives is unable to locate Newberry's original abridged diary and several other expedition materials that appear in their microfilm collections. My search in the National Archives failed to locate many of the materials shown on microfilm. At least two other searches by previous researchers also proved fruitless.

Newberry also drew pencil sketches of the wilderness landscapes he encountered, many of which were subsequently rendered in color and

black-and-white plates by lithographer J. J. Young for publication in the Macomb report. The location of Newberry's original drawings and other personal papers remains one of the unsolved mysteries of this study. We can only hope that, some day, someone will find a rich cache of Newberry's lost papers in the National Archives or among the scattered materials of Young or in some obscure collection.

Macomb apparently did not keep a journal of the expedition. His summary of the venture, printed in the final report, is a compilation of information he appears to have gleaned from his own personal letters to his wife and his correspondence with the topographical bureau.

Little else remains to fill in the remaining historical gaps of the expedition. This is perhaps because expedition members faced strict guidelines in terms of notes, sketches, and other material they collected. The policy read: "an established rule of the [War] Department requires that each assistant shall distinctly understand, in accepting his appointment, that the specimens, notes, sketches, memoranda, and all of the material collected & prepared by him in the field, shall be considered the property of the government, and shall be turned over to the Chief of the Expedition at the conclusion of the work, & that he shall not publish, nor furnish to any parties for publication, either during the progress of the expedition or after its conclusion, any of the information or results which he may have procured while engaged upon the duty."

Unfortunately, some members of the Macomb expedition made ethnocentric and sometimes racist remarks in their descriptions of Hispanics, African Americans, and American Indians. I do not excuse their statements, but they reflect the times and the explorers' backgrounds.

A note about the nomenclature found in the report: Some of the place names encountered by the expedition no longer appear on maps of the region. Tunecha Mountain is now Chuska Mountain. Locals call the Abajo Mountains the Blue Mountains. Sierra de los Valles, or Vias Mountain, is presently known as Valles Calderas. Cañon Pintado, or Cañon de las Pañitas, is today's East Canyon. La Piedra Parada is now Chimney Rock. The Needles is present-day Ship Rock. The Cerro del Pedernal is now Abiquiu Peak. At least two names have disappeared and their identity remains a mystery: El Alto de la Utah and Lagoon des Chavias.

Historic names that tend to cling to the landscape include Cañon Largo, Casa Colorado, Rio Puerco, La Plata Mountains, Nacimiento Mountain, La Sal Mountains, Mesa Verde, Great Sage Plain, Colorado Plateau, Arroyo Seco, Abiquiu, Rio Grande, and Old Spanish Trail.

The colorful names of streams along the route of the Old Spanish Trail preserve the flavor of the times. Spanish colonial exploring and trading

parties, notably the Dominguez-Escalante and Juan Maria de Rivera expeditions, applied lyrical names to the San Juan (Saint John), Rio Piedra (Stone River), Rio de los Pinos (River of Pines), Rio de la Plata (The Silver River), Rio Florida (Flower River), Rio Mancos (Cripple River), and Rio de las Animas (River of the Souls). Many if not most of these and other Spanish names in that area remain in use today.

Macomb's party followed much of the Old Spanish Trail route, a trade artery extending from Santa Fé, New Mexico, to Los Angeles, California, today a federally recognized National Historic Trail. Since 2002, the National Park Service and the Bureau of Land Management jointly administer the Old Spanish National Historic Trail.

Far to the northeast of Macomb's route and the Old Spanish Trail, in a seemingly different world at the time, prospectors and miners played out the drama of the 1859 Pike's Peak gold rush in the environs of modern Denver, Colorado. Two of Macomb's assistants, Newberry and Dimmock, witnessed the homeward stream of miners whose prospects had "busted" as they traveled the Santa Fe Trail. But the rush played no role in the outcome of Macomb's survey of the desert Southwest.

Not finding any water was among the "chief fears" "Nannie" Macomb had for her husband's safety as he set out to explore America's frontier. During the trip, topographer Charles H. Dimmock wrote, "Heavy clouds this evening & soon [a]n increase of rain which falls as if the windows of heaven were opened." Macomb, a religious man, assured his wife, "I feel so well that I often think I must be profiting by your prayers for my well being." At journey's end, Macomb noted that since his arrival in New Mexico two years earlier, he had never seen so much wet weather. He reported, "We had plenty of water, for where there was no water usually we were bountifully rained upon and thus spared all suffering in that score throughout our 77 days of absence." In fact, it had rained more than fifty days.

The expedition discovered a downside to all the moisture. Damp conditions prevented geologist John S. Newberry from protecting all of the natural history specimens he had collected.

Newberry's brilliant mind enabled him to sort out the pieces of the geologic puzzle splayed across the Colorado Plateau region and form sweeping scientific conclusions. Additions to the report's scientific studies would do little to improve it; therefore, I have chosen not to annotate his notes on geology and paleontology.

Unfortunately, many of the dozens of scientific names contained in the official report have been superseded. In addition, a number of classifications appear to have changed over time. (Numerous searches of the scientific names to determine their common names have proven

mostly unproductive.) Much of the scientific methodology and corresponding data is now obsolete. Moreover, only a few of the natural history specimens that Newberry collected have been studied and the findings published.<sup>1</sup>

Even Newberry questioned the idea of updating his own work, and he presented his reasons in the Prefatory Note: “The observations made fifteen years ago, if accurately made, have equal value now as then; if inaccurate, it is only right that the credit of the correction of errors should belong to those who make such corrections. . . . It is evident that to modify the report so as to conform to all the conclusions more recently reached, would be to falsify the record and greatly impair the independence and value of the statements it includes. The truth or error of these statements will soon be demonstrated by the extension of the explorations of other parties into this field.”

Newberry divided his geological report into six chapters, each covering a specific geographic range. He devotes three chapters of his report to the topography, geology, and natural history he encountered during the expedition. Chapter 4 commences the trip up the Rio Grande. Chapter 5 describes the geology of the Great Sage Plain and the valley of the Colorado. Chapter 6 examines the geology of the banks of the San Juan and across the Continental Divide. The narrative in chapter 6 follows the expedition as it reenters the Rio Grande Valley via the pueblos of Jemez and Santo Domingo.

With Newberry’s scientific findings, eloquently written and splendidly illustrated, the Macomb expedition produced a classic of frontier literature. Seized by spectacular landscapes and marvelous geology and paleontology, as well as important archaeological finds, the Macomb explorers aesthetically interpreted the Four Corners region. The survey laid the groundwork for future scientific studies, and specimens gathered by the team, including historically significant vertebrate fossils, became part of the collections of the Smithsonian Institution.

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1. For those who wish to read an analysis of Newberry’s geologic studies, see A. M. Celâl Şengör, *The Large Wavelength Deformations of the Lithosphere*, pp. 185–95. Another excellent source on Newberry is Stephen J. Pyne’s *How the Canyon Became Grand*.



*Photo by author*

Echo Amphitheater, a sandstone formation in northern New Mexico along the Arroyo Seco on the route followed by the Macomb party.